REMARKS

In the Office Action dated October 5, 2007, claims 39, 44-45, 51, 56-57, 60-61, 67, 86, 94, 101, and 105-113 are pending and under examination. Claim 39, 44-45, 60-61, 67, 94, 101, 105-106, 108 and 110-111 are rejected under 35 U.S.C. §112, first paragraph, for allegedly failing to comply with the written description requirement. Claims 51, 86, 107 and 108 are rejected under 35 U.S.C. § 102(b) as allegedly anticipated by Brustle (Canadian Patent CA 2315538). Claims 51, 86, 107 and 108 are rejected under 35 U.S.C. §103 as allegedly obvious based on Thomson in view of Brustle (Science 285: 754-757, 1999). Claims 56, 57, 112 and 113 are rejected under 35 U.S.C. §103 over Thomson in view of Brustle (Science 285: 754-757, 1999) and further in view of Stemple (Cell 71: 973-985, 1992). It is observed that claim 109 is not included in any rejection.

A telephone interview was conducted with the Examiner on February 21, 2008. Applicants, through the undersigned, wish to thank Examiner Ton for the courtesy and assistance extended on behalf of Applicants during the interview.

In response to the Action and consistent with the discussion with the Examiner during the interview, Applicants present the foregoing amendments to the claims. Specifically, claim 39 has been amended to delete the recitation "under adherent conditions", and to define the culturing conditions as "on fibroblast feeder cells". Support for such amendment is found in the specification, for example, on page 28, lines 5-9, and page 31, lines 1-3. Claims 51, 56, 60 and 61 have been amended to incorporate the steps for producing neural progenitor cells, as delineated in claim 39. Claim 86 has been canceled. Claim 105 has been amended to delete the recitation "based on cell morphology". Claim 106 has been canceled. Claim 108 has been amended to add the term "isolated" before the recitation of-undifferentiated pluripotent hES cells.

Claims 114 and 115 are added and are directed to methods of inducing differentiation of neural progenitors into neurons. In claims 114-115, the neural progenitor cells are produced via culturing without generating embryoid bodies (as in claim 110), and are further differentiated into neurons via steps similar to those recited in claims 51 and 56, respectively. No new matter is introduced by claims 114-115.

Based on the telephone interview, Applicants believe that the Examiner will favorably consider the foregoing amendments to the claims.

Rejection Under 35 U.S.C. § 112, First Paragraph

Claim 39, 44-45, 60-61, 67, 94, 101, 105-106, 108 and 110-111 are rejected for allegedly failing to comply with the written description requirement.

Specifically, the Examiner contends that the specification does not adequately describe "adherent conditions" for culturing pluripotent hES cells, as recited in claim 39.

In response, Applicants have amended claim 39 to delete the recitation "under adherent conditions". Rather, as presently recited, the cells are cultured on "fibroblast feeder cells". Applicants observe that the Examiner has acknowledged that the specification discloses the use of mouse embryonic fibroblast feeder cells. Applicants respectfully submit that the specification discloses the use of human fibroblast feeder cells as well. See page 28, lines 5-9, and page 31, lines 1-3 of the specification. Therefore, Applicants respectfully submit that culturing of pluripotent hES cells on fibroblast feeder cells is adequately described in the specification.

Applicants further submit that the inclusion of claim 110 in the rejection is in error. Claim 110 does not recite the phrase "adherent conditions", which is objected to by the Examiner.

The Examiner also contends that the specification does not adequately describe the limitations recited in claims 105-106. Specifically, the Examiner is of the opinion that the specification does not adequately describe the density or size of cells that are destined to give rise to neural progenitor cells.

Although Applicants disagree with the Examiner's rejection, Applicants have canceled claim 106 and amended claim 105 in order to advance prosecution. Applicants respectfully submit that the subject matter of claim 105 as presently amended is fully described in the specification.

In view of the foregoing, the written description rejection under 35 U.S.C. §112, first paragraph, is overcome. Withdrawal of the rejection is respectfully requested.

Rejection Under 35 U.S.C. § 102

Claims 51, 86, 107 and 108 are rejected as allegedly anticipated by Brustle (Canadian Patent CA 2315538).

It is observed that neither claim 39 nor claim 110 is included in the rejection. Brustle does not teach generation of progenitor cells by culturing hES cells on fibroblast feeder cells for 2-3 weeks (recited in claim 39). Nor does Brustle teach generation of progenitor cells without the generation of embryoid bodies (recited in claim 110). Applicants have amended Claim 51 to incorporate the steps for producing neural progenitor cells, as delineated in claim 39. Claim 86 has been canceled. Claim 107 depends from claim 51. Therefore, like claim 39, claims 51 and 107 as amended are also novel over Brustle. Applicants have also added new claims 114 and 115 to delineate that the neural progenitor cells are produced without generation of embryoid bodies (as in claim 110). Therefore, these new claims are also novel over over Brustle.

With respect to claim 108, Applicants respectfully submit that the method of this claim requires culturing isolated undifferentiated pluripotent hES cells in serum free medium supplemented with growth factors to obtain neural progenitor cells. Support for this approach of deriving neural progenitor cells defined in claim 108 is found in the specification, e.g., page 65, lines 7-14, and page 77, lines 10-19. Brustle (Canadian Patent CA 2315538) does not teach culturing isolated pluripotent hES cells in serum free medium. The Examiner has stated that Brustle discloses culturing neural precursor cells in serum free medium. The neural precursor cells disclosed by Brustle, however, are not isolated undifferentiated pluripotent hES cells. Therefore, claim 108 is novel over Brustle (Canadian Patent CA 2315538).

In view of the foregoing, the rejection under 35 U.S.C. §102(b) based on Brustle (Canadian Patent CA 2315538) is overcome. Withdrawal of the rejection is respectfully requested.

Rejections Under 35 U.S.C. § 103

Claims 51, 86, 107 and 108 are rejected as allegedly obvious based on Thomson in view of Brustle (Science 285: 754-757, 1999). Claims 56, 57, 112 and 113 are rejected as allegedly obvious over Thomson in view of Brustle (Science 285: 754-757, 1999) and further in view of Stemple (Cell 71: 973-985, 1992).

The Examiner indicates that Applicants' previous arguments are persuasive with respect to claims that recite that the cells are cultured for 2-3 weeks under adherent conditions (claim 39 and dependent claims), and claims that recite that the culturing does not result in embryoid bodies (claim 110). However, the Examiner states that the claims that remain rejected do not include any of these features recited in claim 39 or claim 110.

In response, claims 51 and 56 have been amended to incorporate the steps for producing neural progenitor cells, as delineated in claim 39. Therefore, claims 51, 56, as amended, and their dependent claims 107 and 112-113, are not obvious over Thomson in view of Brustle (Science), or further in view of Stemple.

New claims 114 and 115 include the same feature for producing neural progenitor cells without generating embryoid bodies, as recited in claim 110. Therefore, Applicants submit that these claims are also not obvious over Thomson in view of Brustle (Science), or further in view of Stemple.

With respect to claim 108, Applicants respectfully submit that neither Brustle, nor Thomson, nor Stemple, teaches or remotely suggests culturing isolated undifferentiated pluripotent hES cells in serum free medium supplemented with growth factors in order to obtain neural progenitor cells. Therefore, the subject matter of claim 108 is not obvious over the cited references.

Accordingly, the obviousness rejections based on the combination of Thomson and Brustle (Science), and on a further combination with Stemple, are overcome. Withdrawal of these rejections is respectfully requested.

Claims 56, 57, 112 and 113 are rejected over Brustle (Canadian Patent CA 2315538) in view of Stemple (Cell 71: 973-985, 1992).

Applicants respectfully submit that Brustle (Canadian Patent CA 2315538) does not teach or remotely suggests culturing pluripotent hES cells for 2-3 weeks on fibroblast feeder cells, or culturing pluripotent hES cells without generating embryoid bodies, in order to obtain neural progenitor cells. Because claim 56 has been amended to include a step of culturing pluripotent hES cells for 2-3 weeks on fibroblast feeder cells, Brustle (Canadian Patent CA

2315538) in combination with Stemple cannot render obvious the subject matter of claim 56 and dependent claims 57 and 112-113. As such, the obviousness rejection based on Brustle (Canadian Patent CA 2315538) in combination with Stemple is overcome.

In view of the foregoing amendments and remarks, it is firmly believed that the subject application is in condition for allowance, which action is earnestly solicited.

Respectfully submitted,

Xiaochun Zhu
Registration No. 56,311

Scully, Scott, Murphy & Presser, P.C.
400 Garden City Plaza-Suite 300
Garden City, New York 11530
516-742-4343
XZ:ab/eh